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EXAMINER	
TIBBITS, PIA FLORENCE	

ART UNIT	PAPER NUMBER
2838	

DATE MAILED: 05/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/618,095	JAMES ET AL.
	Examiner	Art Unit
	Pia F. Tibbits	2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 April 2005 and 14 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8 and 10-30* is/are rejected.

7)☒ Claim(s) *9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 April 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This Office action is in answer to the amendment filed 2/14/2005. Claims 1-30 are pending, of which claims 1-19 were elected with traverse.

1. Applicant is advised that the Notice of Allowance mailed 1/3/2005 is vacated. If the issue fee has already been paid, applicant may request a refund or request that the fee be credited to a deposit account. However, applicant may wait until the application is either found allowable or held abandoned. If allowed, upon receipt of a new Notice of Allowance, applicant may request that the previously submitted issue fee be applied. If abandoned, applicant may request refund or credit to a specified Deposit Account.

2. In the response filed 11/8/2004, applicant elected Group I, and indicated electing claims 1-29, and withdrawing claims 28-29, which placed claims 28-29 as both, elected and withdrawn. Additionally, restricted Group I included only claims 1-19. However, applicant timely traversed the restriction (election) requirement in the reply filed 11/8/2004. The traversal is on the ground that newly added claim 30 links inventions II and I. This is found persuasive and the restriction requirement is withdrawn.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the starting time, the ending time, the first time period, the first stored data, the polarization angle, etc. must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may

be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

5. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter: "starting time", "ending time", "first current pulse", "first time period", "first change", "first time period ","first stored data", "stored capacity values", "a like magnitude and duration", "compare first and second differences to distinguish between two different stored first data values that correspond to a single stored difference". See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction is required.

6. Applicant is reminded to use consistent language throughout the disclosure in order to facilitate finding support for the recited limitations, as well as to provide proper antecedence for all claimed limitations. For example: fig.1 describes element 132 as "remaining energy indicator", the specification describes "storage location 132", while claim 20 describes "a cell capacity indicator storage location".

Claim Objections

7. Claim 10 is objected to because of the following informalities: "the two different stored capacity values" lacks antecedence. Appropriate correction is required.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1, and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by **Kawakami et al.** [hereinafter Kawakami][6563318].

As to claim 1, Kawakami discloses in figures 1-34 a method comprising drawing a substantially constant current pulse from an energy storage cell B_a [see abstract] during a time period [see fig.25]; measuring a change of a terminal voltage V_1 across the cell during the time period; and comparing the measured change V_1 to stored data BD to determine the energy remaining in the cell [see abstract].

With regard to the limitation of having a time period between a starting time and an ending time: it is an inherent function of the time period shown in fig.25 to include a starting time and an ending time, and MPEP 2100 states that the disclosure of a limitation may be expressed, implicit or **inherent.**

As to claim 30, see remarks for claim 1 above.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 2 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kawakami,** as disclosed above, in view of prior art disclosed by applicant **WO-94/02202**[hereinafter WO94].

As to claim 2, Kawakami does not disclose a manganese dioxide battery.

WO94 discloses Medtronic Model 2315 employing manganese dioxide batteries to improve pulsed performance [see page 3]. Therefore, it would have been obvious to a person having ordinary skill in the

art at the time the invention was made to modify Kawakami's apparatus and include a silver vanadium oxide battery, as disclosed by WO94, in order to improve pulsed performance of the battery.

12. Claims 3 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kawakami**, as disclosed above, in view of prior art disclosed by applicant **WO-02/19448**[hereinafter WO02].

As to claim 3, Kawakami does not disclose a silver vanadium oxide battery.

WO02 discloses in the abstract high rate batteries based on silver vanadium oxide yield to improve pulsed performance. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Kawakami's apparatus and include a silver vanadium oxide battery, as disclosed by WO02, in order to improve pulsed performance of the battery.

13. Claims 4, 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kawakami**, as disclosed above, in view of prior art disclosed by applicant, NPL document, "**Lithium/Silver Vanadium Oxide Batteries for Implantable Defibrillators**" [hereinafter NPL].

As to claim 4, Kawakami does not disclose the current pulse comprises drawing a substantially constant current of approximately between 2 amperes and 4 amperes.

NPL discloses the current pulse comprises drawing a substantially constant current of 2 amperes. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Kawakami's apparatus and select the current pulse, as disclosed by NPL, in order to provide guidance to an application specific data.

With regard to the range of the current pulse comprising drawing a substantially constant current of approximately between 2 amperes and 4 amperes, absent any criticality, is only considered to be the use of "optimum" range for the current pulse, that one having ordinary skill in the art at the time the invention was made would have been able to determine using routine experimentation, since the courts have held that discovering an optimum range value of a result effective variable involves only routine skill in the art in order to provide guidance to an application specific data. ***In re Boesch***, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). See also **MPEP 2144.05** statement with regard to **"obviousness of ranges".**

14. Claims 6, 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kawakami**, as disclosed above.

As to claim 6, Kawakami discloses a time period of 5 seconds [see column 64, line 44]. Kawakami does not disclose the time period is approximately between 3 seconds and 30 seconds.

With regard to claim 6: the range of the time period being approximately between 3 seconds and 30 seconds, absent any criticality, is only considered to be the use of "optimum" range for the time period, that one having ordinary skill in the art at the time the invention was made would have been able to determine using routine experimentation, since the courts have held that discovering an optimum range value of a result effective variable involves only routine skill in the art in order to provide guidance to an application specific data. ***In re Boesch***, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). See also **MPEP 2144.05** statement with regard to **"obviousness of ranges".**

As to claim 7, see remarks for claim 6 above.

15. Claims 8 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kawakami**, as disclosed above, in view of NPL document, "**Handbook of Batteries**" by **David Linden** [hereinafter Linden].

Kawakami does not disclose the change comprises measuring a polarization angle.

Linden describes in fig.2.1 a polarization angle η, and discloses that the useful voltage/energy delivered by the cell is reduced by polarization [see page 2.2]. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Kawakami's method and include a change comprises measuring a polarization angle, as disclosed by Linden, in order to accurately asses the useful voltage/energy delivered by the battery.

16. Claims 10-12, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kawakami**, as disclosed above, in view of **Traub** [6696842].

Kawakami does not disclose measuring a quiescent voltage of the cell, and comparing the measured quiescent voltage to a predetermined threshold to distinguish between the two different stored capacity values that correspond to the single change in terminal voltage across the cell.

Traub discloses that it is known to determine a battery charging condition by means of a quiescent voltage measurement. The patent describes detecting a quiescent voltage measurement before the starting operation in order to be able to differentiate by means of the analysis of this quantity between a poor charging condition and a high wear when, during the starting operation, the battery voltage is below a defined voltage threshold. A poor charging condition is detected when previously there was a falling below a defined quiescent voltage threshold. A high wear is detected when previously the defined quiescent voltage threshold was exceeded [see column 1, lines 23-25; column 2, lines 18-28]. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Kawakami's apparatus and include measuring a quiescent voltage of the cell, and comparing the measured quiescent voltage to a predetermined threshold, as disclosed by Traub, in order to distinguish between the two different stored capacity values that correspond to the single change in terminal voltage across the cell and to detect the wear condition of the battery.

As to claim 11, see remarks for claim 10 above.

As to claim 12, Kawakami and Traub do not disclose using the measured change to determine the energy remaining in the cell during an earlier portion of a life of the cell, and using the measured quiescent voltage to determine the energy remaining in the cell during a later portion of the life of the cell. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide a selection for the frequency and the timing of measurements for the quiescent voltage of the battery in order to accommodate a specific battery use application, since it has been held that discovering an "optimum" or "preferred" value for a result effective variable involves only routine skill in the art. ***In re Boesch***, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

As to claims 18 and 19, see remarks for claims 10-12 above.

17. Claim 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kawakami**, as disclosed above.

As to claim 13, Kawakami discloses the claimed invention except for drawing a substantially constant second current pulse from the cell during a different second time period, measuring a second change in the terminal voltage across the cell during the second time period, and comparing the measured second change to first stored data to determine an energy remaining in the cell, including comparing the first and second changes to distinguish between two different stored capacity values that correspond to a single change in the terminal voltage across the cell. It would have been obvious to one having ordinary skill in the art at the time the invention was made to duplicate drawing a substantially constant second current pulse from the cell during a different second time period, measuring a second change in the terminal voltage across the cell during the second time period, and comparing the measured second change to first stored data to determine an energy remaining in the cell, including comparing the first and second changes to distinguish between two different stored capacity values that correspond to a single change in the terminal voltage across the cell., since it has been held that mere duplication of parts has no patentable significance unless a new and unexpected result is produced. ***In re Harza***, 274 F.2d 669, 124 USPQ 378 (CCPA 1960) and MPEP 2144.04.

18. Claims 20, 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Brink et al**. [hereinafter Brink][6114838].

Brink discloses in figures 1-7A a system comprising: an energy storage cell 102; a current source/sink circuit 202, coupled to the cell 102, to draw a substantially constant first current pulse [see column 3, line 36]; a voltage measurement circuit 406, coupled to the cell 102, to measure first and second voltages during the first current pulse [see column 3, line 49 and lines 64-67]; and a processor circuit [see column 9, line 1], coupled to the difference circuit, the processor circuit including a memory circuit [see column 8, line 10] to store first data/look-up table 500 relating cell capacity to the difference between the first and second voltages, the memory circuit also including a cell capacity indicator storage location/remaining battery capacity 106 to provide an indication of cell capacity, the processor configured to use the difference between the first and second voltages obtained from the difference circuit and the stored first data indicative of cell capacity to provide the indication of cell capacity. Brink does not

specifically disclose a difference circuit. However, Brink discloses in fig.4 a battery characterizer circuit 400 coupled to the voltage measurement circuit 406, and including a calculator 402 (1) determining a ΔV as the difference between the first and second voltage measurements; and (2) accessing a lookup table using ΔV. The table contains data representing the precharacterized relationship between the internal battery impedance and the remaining battery capacity data [see column 4, lines 36-45]. A step (4) includes executing a source program to calculate the remaining battery capacity using the mathematical relationship and the first and second battery voltages [see column 7, lines 39-54; column 8, lines 1-12]. . Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made that the prior art element (A) performs the function specified in the claim, (B) is not excluded by any explicit definition provided in the specification for an equivalent, and (C) is an equivalent of the means- (or step-) plus-function limitation, so that the prior art element is an equivalent since the prior art element performs the identical function specified in the claim in substantially the same way, and produces substantially the same results as the corresponding element disclosed in the specification. ***Kemco Sales, Inc. v. Control Papers Co.***, 208 F.3d 1352, 54 USPQ2d 1308 (Fed. Cir. 2000).

Brink discloses an implantable medical device [see column 1, line 50].

As to claim 29, with regard to the particular location of the processor, i.e., located within an external remote interface device, absent any criticality, is only considered to be an obvious modification as it has been held by the courts that there would be no invention in shifting the location of a structure of a device to another location if the operation of the device would not thereby be modified. ***In re Japikse***, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950) MPEP 2144.04.

19. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Brink**, as disclosed above, in view of prior art disclosed by applicant **WO-94/02202**[hereinafter WO94].

As to claim 21, Brink does not disclose a manganese dioxide battery.

WO94 discloses Medtronic Model 2315 employing manganese dioxide batteries improving pulsed performance. [see page 3]. Therefore, it would have been obvious to a person having ordinary skill in the

art at the time the invention was made to modify Kawakami's apparatus and include a silver vanadium oxide battery, as disclosed by WO94, in order to improve pulsed performance of the battery.

20. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Brink**, as disclosed above, in view of prior art disclosed by applicant **WO-02/19448**[hereinafter WO02].

As to claim 22, Brink does not disclose a silver vanadium oxide battery.

WO02 discloses in the abstract high rate batteries based on silver vanadium oxide yield improving pulsed performance. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Kawakami's apparatus and include a silver vanadium oxide battery, as disclosed by WO02, in order to improve pulsed performance of the battery.

21. Claims 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Brink**, as disclosed above, in view of **Traub** [6696842].

As to claim 23, Kawakami does not disclose measuring a quiescent voltage of the cell.

Traub discloses that it is known to determine a battery charging condition by means of a quiescent voltage measurement. The patent describes detecting a quiescent voltage measurement before the starting operation in order to be able to differentiate by means of the analysis of this quantity between a poor charging condition and a high wear when, during the starting operation, the battery voltage is below a defined voltage threshold. A poor charging condition is detected when previously there was a falling below a defined quiescent voltage threshold. A high wear is detected when previously the defined quiescent voltage threshold was exceeded [see column 1, lines 23-25; column 2, lines 18-28]. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Kawakami's apparatus and include measuring a quiescent voltage of the cell, and comparing the measured quiescent voltage to a predetermined threshold, as disclosed by Traub, in order to distinguish between the two different stored capacity values that correspond to the single change in terminal voltage across the cell and to detect the wear condition of the battery.

As to claims 24 and 25, see remarks for claim 23 above.

As to claim 26, Brink and Traub do not disclose using the measured change to determine the energy remaining in the cell during an earlier portion of a life of the cell, and using the measured quiescent voltage to determine the energy remaining in the cell during a later portion of the life of the cell. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide a selection for the frequency and the timing of measurements for the quiescent voltage of the battery in order to accommodate a specific battery use application, since it has been held that discovering an "optimum" or "preferred" value for a result effective variable involves only routine skill in the art. ***In re Boesch***, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

As to claim 27, see remarks for claims 23-26 above.

22. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Allowable Subject Matter

23. Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

With respect to claim 9: none of the references of record prior to applicant's filing date discloses, teaches, or suggests a method comprising, *inter alia*, measuring a first terminal voltage across the cell just after the starting time; measuring a second terminal voltage across the cell just before the ending time; and dividing a difference between the first and second terminal voltages by a time difference between the measurements.

Conclusion

24. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited in PTO-892 and not mentioned above disclose related apparatus.

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Pia Tibbits whose telephone number is (571) 272-2086. If unavailable, contact the Supervisory Patent Examiner Mike Sherry whose telephone number is (571) 272-2084. The Technology Center Fax number is (703) 872-9306.

26. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PFT

April 16, 2005

Pia Tibbits

Primary Patent Examiner